US 20220022361A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0022361 A1

OGURA et al. (43) Pub. Date: Jan. 27, 2022

(54) AUTONOMOUS TRAVEL SYSTEM

(71) Applicant: **Yanmar Power Technology Co., Ltd.**, Osaka (JP)

(72) Inventors: **Kohei OGURA**, Osaka (JP); **Yasuto NISHII**, Osaka (JP); **Taiki SHIRAFUJI**, Osaka (JP)

(73) Assignee: **Yanmar Power Technology Co., Ltd.**, Osaka (JP)

(21) Appl. No.: **17/312,921**

(22) PCT Filed: **Oct. 4, 2019**

(86) PCT No.: **PCT/JP2019/039276**

§ 371 (c)(1),
(2) Date: **Jun. 10, 2021**

(30) **Foreign Application Priority Data**

Dec. 11, 2018 (JP) 2018-231378

Publication Classification

(51) **Int. Cl.**

A01B 69/04	(2006.01)
G05D 1/02	(2006.01)
G05D 1/00	(2006.01)

(52) **U.S. Cl.**

CPC ... ***A01B 69/008*** (2013.01); *G05D 2201/0201* (2013.01); ***G05D 1/0011*** (2013.01); ***G05D 1/0219*** (2013.01)

(57) **ABSTRACT**

This autonomous travel system is provided with a farm field acquisition unit, a reference auxiliary line creation unit, an adjacent auxiliary line creation unit, and a travel control unit. The farm field acquisition unit acquires information regarding a farm field that includes a work area and a headland area. The reference auxiliary line creation unit creates first reference auxiliary lines within the headland area at positions spaced apart from the farm field peripheral edge on the inner side thereof by a first reference interval. The adjacent auxiliary line creation unit creates, at each of auxiliary line intervals, first adjacent auxiliary lines at positions spaced apart from the first reference auxiliary lines on the inner sides thereof. The total number of first reference auxiliary lines and first adjacent auxiliary lines created on the inner side of one predetermined side of the farm field peripheral edge is a value obtained by rounding up to a value equal to or less than the decimal of the headland width L/the auxiliary line interval S. The travel control unit causes a work vehicle to travel autonomously along at least some of the first reference auxiliary lines and the first adjacent auxiliary lines.